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**SELF-DIRECTED LEARNING AND TEACHER PROFESSIONAL DEVELOPMENT: AN ADAPTED PROFILE OF IMPLEMENTATION****Abstract:**

The leitmotiv of this paper is an appreciative inquiry of the Rogan and Grayson (2003) Profile of Implementation heuristic, which has the potential to guide teacher professional development programmes, and also record a teacher's growth and development during such interventions. The research question that guides this paper is, 'what are the affordances and limitations of Rogan and Grayson's (2003) Profile of Implementation to guide teacher professional development?' To this end, we structure the paper according to the four dimensions included in the Rogan and Grayson heuristic, namely (a) classroom interaction, (b) practical work, (c) science and society, and (d) assessment. The research context is a teacher professional development programme facilitated by the North-West University in Potchefstroom, South Africa, in which ten science teachers participated. In this research we identified the need to map teachers' progress in terms of their professional development. In the Rogan and Grayson heuristic, teachers are plotted in each of the four dimensions (classroom interaction, practical work, science-and-society perspectives, and assessment) in one of four levels (with level 1 indicating basic compliance, and level 4 mastery. However, we adopted Petersen's interpretation of the heuristic, which also provides for a level 0, indicating non-compliance). In the paper we focus on research data on teachers' classroom interaction, their ability to facilitate practical laboratory work based on the tenets of science, their ability to effectively contextualize science, and to engage in meaningful assessment. We also show how the professional development programme attempted to assist teachers' learning and professional development in each of these four dimensions. We critique the Profile of Implementation based on the absence of self-directed learning (SDL) in it. Self-directed learning describes a process by which individuals take the initiative, with or without the assistance of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes. A particular contribution of this paper is the suggestion that a fifth dimension should be added, namely self-directed learning. The proposed fifth dimension sees self-directed learning as a sine qua non for development in the other four dimensions. Such a focus on SDL could arguably assist the teacher in a quicker transition from one level to the next.

**Keywords:**

Teacher professional development, Classroom interaction, Practical work, Science and society, Assessment, Self-directed learning, Profile of Implementation, Nature of Science and Nature of Indigenous Knowledge

**JEL Classification:** I23, I24, I21